**Nuclear Science Week 2020 Public Outreach Proposal**

**Claiborne County School District**

**Summary:**

The “Claiborne County Nuclear Science Week” will be a week-long program aimed at providing high school students with an opportunity to understand and explore the value of nuclear science, including how *nuclear technology works*. Students will be engaged with virtual presenters from the nuclear industry, virtual site tours, demonstrations, field trips and student-led activities that further help enhance students’ leadership, public speaking skills and career pathway skills in the field of nuclear science. The goals of the week-long program are to: 1) gain knowledge of their very own nuclear power plant Grand Gulf Nuclear Station; 2) assist students in gaining knowledge of all aspects of nuclear science; and 3) exposure to career opportunities to the field of nuclear science. The ultimate goal is to provide an opportunity for learning about the contributions, innovations and opportunities that can be found by exploring nuclear science. To accomplish these goals, students will participate in a week-long journey of student-led activities designed to increase understanding of nuclear energy and nuclear technology applications. Presentations will cover a variety of nuclear science topics including power plant operation, safety, experiments and activities with Radiation and the Cloud Chamber, using a Geiger Counter, Personal Radiation Dose, the Future of Nuclear Energy, Fueling the Future, career inventory and a wrap up of Nuclear Energy through a Virtual Field Trip. Included in those presentations, students will gain outreach messages promoting the themes “Radiation and radioactivity are a natural part of our world; nuclear technology works; and how nuclear technology enhances our quality of life.” Energy Academy participants will be divided into groups of five and will be responsible for leading and providing presentations for each designated topic. At the end of each session, Academy participants will participate in question and answer session and will be responsible for creating a “lesson learned” presentation to be used as an evaluation tools of improvement.

**Target audience (general public, children/team, educators, legislators, etc).**

The target audience involves 435 students at the high school, parents, the local community

**Anticipated attendance**

The anticipated attendance is 435 high school students

**Statement of project need (Describe why this event is needed)**

The nuclear energy industry is a powerful engine for job creation. Increasing the number of students with the education, skills and training needed for the economy is a multilayered strategy. Some of the steps to achieve this goal include making teaching and learning more rigorous, engaging and relevant; ensuring that more students are college and career ready; increasing high school graduation rates; especially for lower performing students; providing opportunities for youth to learn about and experience careers; and smoothing the transition to postsecondary success. Claiborne County is a rural county located in Southwest Mississippi. The home of the oldest land grant institution in the county, Claiborne County is the third oldest county in the state. In Claiborne County the median household income is $24,601 and the unemployment rate is 16.9%, almost twice the state and US rates. In Claiborne County the percentage of families living in poverty is 42.1%, while the percentage of youth living in poverty was 37.1%. The graduation rate for Claiborne County is 89% and has increased over the past year. In Claiborne County School District, all students participate in the school lunch program and 100% are eligible for free or reduced-priced lunch. The proposed project assists our students in becoming more college and career ready and better help guide in making teaching and learning a fun endeavor.

**Description (please include a detailed description of your event including date/dates, time, location, activities (use extra sheets if necessary)**

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**How will you evaluate the effectiveness of the event:**

The effectiveness of the program will be measured by a variety of tools to include program attendance and participation, online surveys from all 435 students that will include a rating scale on satisfaction with the program offerings, the usefulness of the services (presentations), and open-ended questions where participants can add comments and recommendations for program changes. There will be a virtual meeting with Energy Academy participants to discuss the data, identify strengths and any recommendations for improvements so that adjustments can be made. The program will also be evaluated based upon the requirements of participants to include the design of a “Nuclear Technology Works” logo, brochures and fact sheet. Students will be required at the end of the week to create their very own Thank You Card that will be distributed to all program partners.

**Vicksburg Warren School District – Nuclear Science Week 2020 Activities**

During the week of 19-23 October 2020 Vicksburg Warren School District has plans to host the "What's Watt" Nuclear Energy Engagement. The "What's Watt" activity will be an opportunity for high schoolers from Vicksburg High School and Warren Central High School to learn about nuclear energy by constructing a miniature power station. Students will be provided with materials, and the instructions necessary to erect individual miniature operational nuclear power station(s). This project-based learning activity will allow students to discover information and discount some of the myths about nuclear energy. Students should also be prepared to be exposed to the lexicon of nuclear science through the use of the vocabulary. On Tuesday, 21 October and then on Wednesday, 22 October 2020, a total of forty students; twenty (20) students previously selected from each high school will be given the opportunity to enjoy this enrichment activity. They will be involved in instructor led activities that will focus primarily on building a scale model of a nuclear power plant all while learning the benefits of nuclear technology, how nuclear technology works, and what career pathways and opportunities exist in the field of nuclear science. Curriculum resource will be utilized from Navigating Nuclear: Energizing our World. Additionally, human resources from Vicksburg Warren School District Science Instructors, Vicksburg Warren College and Career Academy Coaches, and scientists from both the U.S. Engineering Research and Development Center at Vicksburg and the Grand Gulf Nuclear Station, will be leveraged to ensure the effectiveness of this event.

**Description (Please include a detailed description of your event including date/dates, time, location, activities. Use extra sheets if necessary.)**

The Energy Academy Pathway is a pathway with the Academy of Architecture, Construction, Mechatronics, and Engineering. Currently there are 568 students in the ACME Academy of VWCCA. The student composition is as follows: Vicksburg High School ACME academy (235), Warren Central High School ACME Academy (333). Of these students, seven percent will be selected to participate. Of these 40 students each will be provided with materials to construct a miniature nuclear power plant model, and a branded item to commemorate the experience. The branded items should also serve as promotional material to bolster overall student interest in the field of nuclear energy. The "What's Watt" Nuclear Energy Engagement will be held on 20-21 October 2020. Tuesday the event will be at Warren Central High School. On Wednesday the event will be held at Vicksburg High School. Both schools are located in Vicksburg Mississippi. Ideally, the events will last 2.5 hours. This will allot 15 minutes to distribute the pre-event survey, 45 minutes for presentations from the invited guest/practitioners, and 60 minutes (I hour) for the construction of the miniature power station, and 15 minutes for the dissemination/retrieval of the post-engagement instrument. The additional 15 minutes is built in for student transitions as the event will take place during a normalized school day. The event is currently being planned from 9a-11:30a on both days. The time may change because of necessary considerations due to student selection versus existing academic schedules.

**Metrics (How you will evaluate the effectiveness of the event.)**

A pre-engagement survey will be developed to assess the overall knowledge/awareness about the field of nuclear energy. As a part of the survey students, will be asked to match words with their meanings. A post-engagement survey will be issued immediately following this event. During the post-engagement phase of this event, students will be asked to reflect on their experiences. These instruments will be used to evaluate the efficacy of the event.